Volunteer Lake Assessment Program Individual Lake Reports

MOUNTAINVIEW LAKE, SUNAPEE, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	832	**Max. Depth (m):**	6.7	**Flushing Rate (yr^{1})**	1
Surface Area (Ac.):	105	**Mean Depth (m):**	4.1	**P Retention Coef:**	0.69
Shore Length (m):	3,700	**Volume (m^3):**	1,758,000	**Elevation (ft):**	1116

TROPHIC CLASSIFICATION

Year	Trophic class
1978	OLIGOTROPHIC
1992	OLIGOTROPHIC

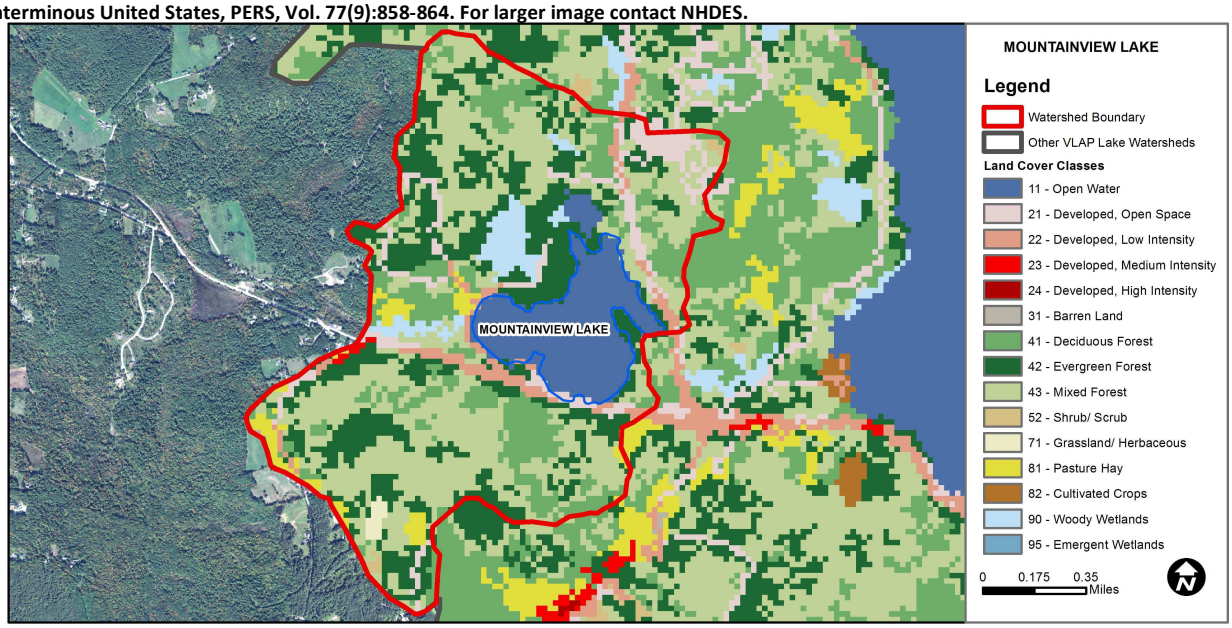
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.7	Barren Land	0.04	Grassland/Herbaceous	0.45
Developed-Open Space	6.05	Deciduous Forest	13.62	Pasture Hay	2.57
Developed-Low Intensity	3.09	Evergreen Forest	23.9	Cultivated Crops	0
Developed-Medium Intensity	0.21	Mixed Forest	34.41	Woody Wetlands	3.09
Developed-High Intensity	0	Shrub-Scrub	0.39	Emergent Wetlands	0

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
MOUNTAINVIEW LAKE, SUNAPEE, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were relatively low and less than the NH lake median. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity levels were elevated in Hamel Brook likely due to road salting. The deep spot and tributary conductivity levels historically elevated and greater than the NH lake median, except at Rt. 103 Inlet.
- **TOTAL PHOSPHORUS:** Epilimnetic (upper water layer) phosphorus levels were average and equal to the NH lake median. Historical trend analysis indicates a relatively stable epilimnetic phosphorus trend. Hypolimnetic (lower water layer) phosphorus levels were slightly elevated in July and August and turbidity was also elevated likely due to low water levels. Phosphorus levels were slightly elevated in Hamel Bk in June and Hamel Bk at 103 and Mud Pond Inlet in July. Laboratory notes indicate light sediment in the samples likely due to low tributary flows and dry conditions.
- **TRANSPARENCY:** Transparency improved as the summer progressed and was approximately equal to the NH lake median. Historical trend analysis indicates a significantly decreasing (worsening) transparency.
- **TURBIDITY:** Hypolimnetic turbidity was slightly elevated in July and August likely due to low water levels and the proximity of the sample near the lake bottom. Hamel Bk turbidity was slightly elevated in June. Mud Pond and Hamel Bk at 103 turbidities were slightly elevated in July likely due to low flow conditions.
- **pH:** pH levels historically dip below desirable ranges and can be critical to aquatic life.
- **RECOMMENDED ACTIONS:** Conduct chloride monitoring to establish a baseline data set of chloride to evaluate road salt usage. Work with DES Dam Bureau to assist dam owner with maintenance activities to maintain water flow out of the lake. The decreasing transparency trend is a concern and may be a result of stormwater runoff. Watershed residents should be educated on ways to reduce stormwater runoff from their properties utilizing DES' "NH Homeowner's Guide to Stormwater Management".

Table 1. 2012 Average Water Quality Data for MOUNTAINVIEW LAKE

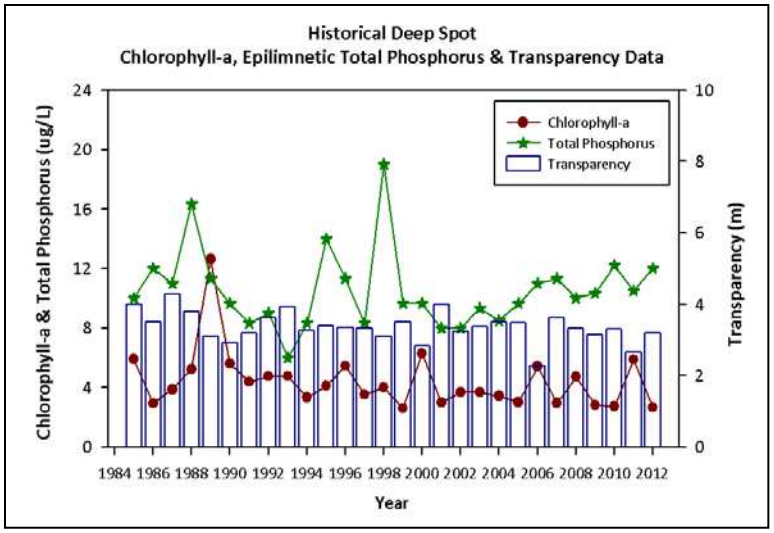
Station Name	Alk.	Chlor-a	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	ug/l	m		ntu	
					NVS	VS		
Deep Epilimnion	9.33	2.67	101.1	12	3.20	3.83	1.64	6.67
Deep Hypolimnion			100.9	14			2.42	6.50
Hamel Bk At 103			187.9	28			2.45	7.00
Hamel Brook			209.4	31			3.81	6.68
Mud Pd Brook			100.7	21			1.46	6.09
N Hamel Rd In Lake			100.2	10			0.76	6.74
Outlet			100.4	11			0.90	6.65
Route 103 Inlet			30.4	19			0.79	6.36

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Degrading	Data significantly decreasing (worsening).
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.



This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
Sara Steiner
PO Box 95
Concord, NH 03302-0095
(603) 271-2658
sara.steiner@des.nh.gov